Work Completed

Last week we were informed that our client no longer had a use for an automatic paintbrush; therefore, this week we started in a new direction. Patty Mitchell, our new client contact informed us that our client would benefit from some sort of paintbrush/marker wrist attachment. The direction for week three dealt with finalizing the design for our client’s arm support as well as taking dimensions for the support. Also, the design and orders for the new paintbrush/marker wrist attachment were completed in week three.

Individually during week three, I constructed the design for the universal paintbrush/marker wrist attachment. The idea behind the design was to build a devise that could be worn by our client which would be lightweight and would provide range of adjustability as far as the type of paintbrushes and markers the design would accept. Also, the design would provide adjustability in the position of the marker once it was placed in the device.

The core of universal paintbrush/marker wrist attachment is a R.E.D. impact wrist guard (see Figure 1).

Figure 1: R.E.D. Impact Wrist Guard

This wrist guard was chosen for this design because it is lightweight, will not rotate around like a glove would, and the structural members in the wrist guard which are used for protection can be used to mount the device which will hold the paintbrush/marker. I
placed an order for this product on Friday February 3, 2006, so hopefully it will be in before the end of this week.

Also during this week, I came up with an idea on how make the paintbrush/marker’s attachment system adjustable so our client can set the paintbrush/marker at any angle he wishes. This will be accomplished using a 1-5/8” round piece of PVC with a 9/16” hole cut through the center. The top of the PVC will have notches (see Figure 2) that will allow the paintbrush/marker holder to rotate around the circumference of the PVC. It will securely stop at any desired angle by locking in place at the notch. A bolt with a spring around it will run through the center of PVC and will be attached to the paintbrush/marker holder. The holder will be held in place by the force of the spring; however, when the holder is pulled away from the PVC, it will then be able to rotate to the desired location and then locked in place by the notch. The spring will again, keep the holder in a static position.

![Figure 2: PVC base with slots drilled out.](image)

The paintbrush/marker holder will ride on top of the PVC and will allow the use of many different size paintbrushes and markers. The holder will be made out of 1” hollow tube aluminum with a .76” inner diameter. These dimensions will allow for the use of the largest brushes. The top of the holder will have two threaded holes, which will allow for wing nuts to be used to lock the paintbrush/marker in place. The bottom of the holder will have some sort of extrusion on either end which will fit in the notches of the PVC to lock the holder in place.
During this week, I also prepared for work which will be completed next week. I made a template for the PVC base which will be used to mark exactly where to drill out the notches on the PVC (see Figure 4). The template was made on the computer, therefore, is dimensionally correct and will allow the notches to be evenly spaced on the PVC. This is an essential step in creating the universal paintbrush/marker wrist attachment. If the holes are not evenly spaced around the circumference, then the extrusion on the bottom of the holder will not fit into the notches on the PVC and the paintbrush/marker will not be locked in a static position.
**Future Work**

During the fourth week, we will have materials in, and will begin working on the construction of our design. I plan to notch the PVC and then begin analyzing different spring-bolt combinations to see which will work best for our design. Once I have the correct spring-bolt combination, I plan to start work on the holder. Two holes will first be drilled into the holder, and then they will be tapped so wing nuts can be used to lock a paintbrush/marker into place.

We will also spend time working on our support system during this upcoming week. We have already received some parts in for this part of the project and we will be getting more in soon. During this week, we plan to take dimensions for the support system so that we can cut the 80/20 parts to size and start mocking up the support. During week three, we found a ball joint which we plan to use in this design, so we are going to order it this week and hopefully by the fourth week, we will have this item in and we will be able to begin incorporating this into our support design.

**Project Review**

Week three has been a very positive week. We have finally settled what components we are doing for our project and we have started working on these components individually. We are through the design phases and we are now beginning to build the designs for our project. All our goals from week three have been met and it seems as though we are on track to meet our goals for week four.

**Hours Worked**

Hours spent on the project for Week 1: 12.00